

**BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT**

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>December 1, 2020</b>
<b>Hours:</b>	<b>19:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit- I, II under AMP. Unit-IV & V on stand by. 400kV THP-SIL Fdr I under AMP. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	156.60	+	
		Unit- III	99.96	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	150.43	+	
		Unit- V	89.90	400kV Malbase - Siliguri	82.00	+	
		Unit- VI	120.27	-	-	-	
		<b>Total</b>	<b>310.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.000%</b>		
2	720MW MHP	Unit-I	145.23	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II & III under AMP. Unit-IV on standby. 400kV MHP-JLG Fdr I & IV on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	72.04	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	72.20	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>145.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.682%</b>		
3	336MW CHP	Unit- I	76.08	220kV CHP - Birpara Fdr- I	2.98	+	Unit II under AMP. Unit-IV on standby.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	3.06	+	
		Unit- III	75.39	220kV CHP - Malbase Fdr- III	74.41	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	48.58	+	
		-	-	220kV Malbase - Birpara Fdr.	-47.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.64	+	
		-	-	66kV CHP - Gedu Fdr.	4.37	+	
		-	-	3x3MVA, 66/11kV TFR	2.06	+	
		<b>Total</b>	<b>151.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.244%</b>		
4	24MW BHP (U/S)	Unit- I	10.30	220kV BHP - Semtokha Fdr.	28.20	+	U/S Unit-I & L/S Unit II under AMP
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.50	+	
	<b>Total</b>	<b>10.30</b>	<b>220kV BHP - Tsirang Fdr.</b>	<b>-12.66</b>	<b>-</b>		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		20.10	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>20.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.743%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	36.80	+	Unit I on Standby
		Unit-II	37.04	220kV Jigmeling - Dagapela Fdr.	2.20	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>37.04</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.648%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	12.12	+	Unit I under AMP. Unit II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	14.96	+	
		Unit- III	14.08	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	14.11	132kV Gelephu - Salakati Fdr.	-11.40	-	
		-	-	132kV Motanga - Rangia Fdr.	7.71	+	
		-	-	220kV Tsirang - Jigmeling	27.22	+	
		<b>Total</b>	<b>28.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.306%</b>		

**Note: Generation-Load Summary for December 01, 2020 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	529.04	304.18	303.20	197.64	0.98
2	Eastern Grid	173.42	60.09	58.45	140.55	1.64
	<b>Total</b>	<b>702.46</b>	<b>364.27</b>	<b>361.65</b>	<b>338.19</b>	<b>2.62</b>

**Note: Generation-Load Summary for December 01, 2019 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	531.19	279.00	268.36	229.42	10.64
2	Eastern Grid	176.35	68.63	65.85	130.49	2.78
	<b>Total</b>	<b>707.54</b>	<b>347.63</b>	<b>334.21</b>	<b>359.91</b>	<b>13.42</b>

**NOTE: Data collected from MHP, KHP, BHP and Malbase.**

- The Instantaneous load balance is calculated as (Total generation - (Total export-Import) - Total domestic load) do not tend towards zero. This could be due to the following reasons:
  - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
  - The clocks of all the locations are not synchronized.
- This report is generated to give an idea of the generation & load flow for the system at a particular instant.

**BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT**

Maximum Load/Demand till Date

Date:	December 2, 2020
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit- I, II under shutdown. Unit-IV on stand by. Unit-V under break down. 400kV THP-SIL Fdr I under shutdown. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	109.02	+	
		Unit- III	140.29	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	164.12	+	
		Unit- V	0.00	400kV Malbase - Siliguri	87.00	+	
		Unit- VI	139.32	-	-	-	
		<b>Total</b>	<b>279.61</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.314%</b>		
2	720MW MHP	Unit-I	159.92	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-IV on standby. 400kV MHP-JLG Fdr I & IV on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	79.30	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	79.60	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>159.92</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.638%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	46.90	+	Unit II under Annual Maintenance. Unit-I on standby. 220kV CHP-Malbase Fdr III under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	46.70	+	
		Unit- III	69.14	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	68.50	220kV CHP - Semtokha Fdr- IV	26.08	+	
		-	-	220kV Malbase - Birpara Fdr.	-43.81	-	
		-	-	66kV CHP - Chumdo Fdr.	11.14	+	
		-	-	66kV CHP - Gedu Fdr.	5.15	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		<b>Total</b>	<b>137.64</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.196%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	25.47	+	U/S Unit-I & L/S Unit-II under Annual Maintenance.
		Unit- II	10.16	66kV BHP - Lobeysa Fdr.	14.13	+	
		<b>Total</b>	<b>10.16</b>	220kV BHP - Tsirang Fdr.	-9.76	-	
	40MW BHP (L/S)	Unit- I	20.48	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>20.48</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.488%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	34.00	+	Unit-I Standby
		Unit-II	34.21	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>34.21</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.614%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	14.65	+	Unit I under Annual Maintenance. Unit IV on Standby.
		Unit-II	13.10	132kV KHP - Kilikhar Fdr- II	11.63	+	
		Unit- III	14.10	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-7.60	-	
		-	-	132kV Motanga - Rangia Fdr.	3.31	+	
		-	-	220kV Tsirang - Jigmeling	22.60	+	
		<b>Total</b>	<b>27.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.926%</b>		

**Note: Generation-Load summary for December 02, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	482.10	213.69	208.24	245.81	5.45
2	Eastern Grid	187.12	55.11	53.57	154.61	1.54
	<b>Total</b>	<b>669.22</b>	<b>268.80</b>	<b>261.81</b>	<b>400.42</b>	<b>6.99</b>

**Note: Generation-Load Summary for December 02, 2019 at 09:00hrs**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	416.34	237.07	230.74	167.66	6.33
2	Eastern Grid	188.07	65.54	64.22	134.14	1.32
	<b>Total</b>	<b>604.41</b>	<b>302.61</b>	<b>294.96</b>	<b>301.80</b>	<b>7.65</b>

**NOTES: Data collected from MHP, KHP, BHP and Malbase.**

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  - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
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